Anaphylaxis and Severe Bee Sting Allergy

RECOGNITION

Exposure to a substance (eg: bee sting, peanuts, penicillin, etc) to which the patient is profoundly sensitive; signs of shock; wheezing; respiratory distress; hives.

TREATMENT

1. Maintain a patent airway; assist ventilation as necessary.

2. Administer **OXYGEN** with the highest-concentration device tolerated.

3. For patients with severe respiratory distress: Administer **EPINEPHRINE 1:1000 (1mg/mL)** as indicated below. For patients over 50 years of age, or who have a known cardiac history, contact Medical Control prior to administration of **EPINEPHRINE.**

   3.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg (0.3mL) SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

   3.2 Pediatric patients: Administer **EPINEPHRINE 1:1000** SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector, as specified below:

   3.2.1 Pediatric patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.3 mL (0.3 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

   3.2.2 Pediatric patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.2 mL (0.2 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or by an **EpiPen® Jr.** auto injector.

   3.2.3 Pediatric patients <10 kg (25 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.1 mL (0.1 mg) by drawing from ampules or vials or with a prefilled syringe (eg: Ana-Kit®).

Quick Reference

Manage A-B-C

High conc. O_2

Epi: 1:1000

Draw Epi; or use pre-filled syringe or autoinjector Adult 0.3 mg

Epi SQ- Pediatric

>20 kg: EpiPen® or *0.01 ml/kg, max:0.3 ml SQ*

10-20 kg: EpiPen® Jr**.** *or 0.01 ml/kg, max: 0.2 ml SQ*

<10 kg: 0.01 ml/kg, max:0.1 ml SQ

4. Assess patient, obtain initial vital signs, and frequently reassess patient's condition. *Physical Exam & Vital Signs*

5. Transport should not be delayed; administration of **EPINEPHRINE** and other interventions can be undertaken en route to a *HOSPITAL EMERGENCY FACILITY.* *Transport ASAP*

▼***ALS Personnel***

6. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*. *Monitor ECG*

7. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below: *IV: NS or LR*

7.1 Adult patients: Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (20-30 mL/hour). If there is evidence of shock, follow the *Shock* protocol.

7.2 Pediatric patients <5 feet tall (<35kg/75 lbs): Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (10-20 ml/hr). If there is evidence of shock, follow the *Shock* protocol.

▼ ***ALL EMTs***

8. If respiratory distress or shock do not improve, repeat **EPINEPHRINE 1:1000** (1 mg/mL): *Epi 1:1000*

8.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg SQ *Adult: 0.3 mg*

8.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:1000** as indicated below: *Pediatric:*

8.2.1 Patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.3 mL (0.3 mg). *0.01 ml/kg max: 0.3 ml*

8.2.2 Patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.2 mL (0.2 mg). — *0.01 ml/kg max: 0.2 ml*

8.2.3 Patients <10 kg (25lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.1 mL (0.1 mg). — *0.01 ml/kg max: 0.1 ml*

▼ ***ALS PERSONNEL***

8.3 Alternate doses/routes of administration of **EPINEPHRINE** for patients with severe respiratory distress or hypotension: — *Alternate Epi*

8.3.1 Adult patients: Administer **EPINEPHRINE 1:10,000** 0.01 mg/kg to a maximum of 0.5 mg IV over 5-10 minutes. — *Epi by IV*

8.3.1.1 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. — *Epi by ETT*

8.3.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:10,000** 0.005-0.020 mg/kg (to a maximum of 0.5 mg) IV over 5-10 minutes. — *Epi by IV*

8.3.2.1 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE** by endotracheal tube. — *Epi by ETT*

9. Administer **DIPHENHYDRAMINE** (Benadryl®) as indicated below: — *Diphenhydramine*

9.1 Adult patients: Administer **DIPHENHYDRAMINE** (Benadryl®) 25-50 mg PO, IM or IV. — *Adult: 25-50mg PO, IM or IV*

9.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **DIPHENHYDRAMINE** (Benadryl®) 1 mg/kg PO, IM or IV

Pedi: 1mg/kg PO, IM or IV

10. Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), as indicated below:

Hydrocortisone Sodium Succinate

10.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 100 mg IV.

Adult: 100mg IV

10.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

Pedi: 1-2 mg/kg IV

11. ***EMT-Ps only:*** May perform either or both of the following. EMT-Cs must contact Medical Control for authorization to administer **DOPAMINE HCL.**

Dopamine

11.1 Administer **DOPAMINE HCL** by IV infusion as indicated below:

11.1.1 Adult patients: Administer **DOPAMINE HCL** at 5-20 mcg/kg/min IV (preparation: 400 mg in 250 mL NS yields 1600 mcg/mL) and titrate the rate to achieve a systolic blood pressure >90 mm Hg.

Adult

11.1.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **DOPAMINE HCL** as indicated on Broselow® Tape, at 5-20 mcg/kg/min IV, and titrate the rate to achieve a systolic blood pressure above the appropriate age-related value (refer to the following table).

Dopamine per Broselow® tape

AGE		**Systolic BP**	
Newborn	(birth-1 month)	**>40**	NOTE:
Infant	(1 month – 1 year)	**>60**	absent
Pre-School	(1-6 years)	**>75**	radial pulse
School Age	(6-12 years)	**>85**	suggests
Adolescent	(12-16 years)	**>90**	hypotension

11.2 ***EMT-Ps only:*** With authorization from Medical Control, may administer **EPINEPHRINE** by IV infusion as indicated below:

(Epi Drip)

11.2.1 Infuse **EPINEPHRINE** 0.05-0.20 mcg/kg/min

▼***ALL EMTs***

Med Control

12. Contact Medical Control.

13. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

Transport

14. If further respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.

15. If signs of shock are present, follow the *Shock* protocol.

16. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Document

Asthma (COPD)

RECOGNITION

Shortness of breath; difficulty breathing manifested by use of ancillary muscles of respiration; flaring nostrils, intercostal, supra-clavicular, or sternal retractions (child); musical wheezes; respiratory rate >30 (adult); prolonged expiratory phase of respiration; previous history of asthma or COPD (Chronic Obstructive Pulmonary Disease).

TREATMENT

1. Maintain a patent airway; assist ventilation if needed.
2. Administer **OXYGEN** with the highest-concentration device tolerated.
3. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.
4. For patients with severe respiratory distress, administer **EPINEPHRINE 1:1000 (1 mg/mL)** as indicated below. For patients over 50 years of age, or who have a known cardiac history, contact Medical Control prior to administration of **EPINEPHRINE.**

    4.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg (0.3 mL) SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

4.2 Pediatric patients: Administer **EPINEPHRINE 1:1000** SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen**® auto injector, as specified below:

- 4.2.1 Pediatric patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01mL/kg (0.01 mg/kg) SQ, to a maximum of 0.3 mL (0.3 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen**® auto injector.
- 4.2.2 Pediatric patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.2 mL (0.2 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or by an **EpiPen® Jr.** auto injector.
- 4.2.3 Pediatric patients <10 kg (25lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.1 mL (0.1 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana Kit®)

Quick Reference

Manage A-B-C

High conc O_2

Physical Exam & Vital Signs

Epi 1:1000 SQ

Draw Epi; or use pre-filled syringe or autoinjector Adult 0.3mg

Epi SQ – Pediatric:

>20 kg: EpiPen® or 0.01 mL/kg, max: 0.3 mL SQ

10-20 kg: EpiPen® Jr. or 0.01 mL/kg, max: 0.2 mL SQ

<10 kg: 0.01 mL/kg, max: 0.1 mL SQ

5. If further respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.

6. Contact Medical Control, for authorization to administer bronchodilator therapy as indicated below:

Med Control

Albuterol by nebulizer

6.1 All patients ≥ 6 months of age: Administer 2.5 mg of **ALBUTEROL** (Proventil®, Ventolin®) 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5-15 minutes. May repeat x 2 en route.

Pedi <6 months Albuterol by nebulizer

6.2 For pediatric patients < 6 months: Administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

ALS

▼ ***ALS PERSONNEL***

7. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

Monitor ECG

8. Start an IV access device or an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below:

IV Access or IV: NS or LR

8.1 Adult patients: If an IV has been started, administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (20-30 mL/hour). If there is evidence of shock, follow the *Shock* protocol.

8.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): If an IV has been started, administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (10-20 mL/hour). If there is evidence of shock, follow the *Shock* protocol.

▼ ***ALL EMTS***

9. If respiratory distress or shock do not improve, repeat **EPINEPHRINE 1:1000** (1 mg/mL):

Epi: 1:1000

9.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg SQ.

Adult 0.3 mg

Pediatric:

9.2 Pediatric patients < 5 feet tall (<35kg/75lbs): Administer **EPINEPHRINE 1:1000**, as indicated below:

9.2.1 Patients > 20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.3 mL (0.3 mg)

0.01mL/kg, max: 0.3 mL

9.2.2 Patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.2 mL (0.2 mg).

0.01mL/kg max 0.2 mL

9.2.3 Patients < 10 kg (25 lbs): Administer **EPINEPHRINE 1:1000**, 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.1 mL (0.1 mg).

0.01 mL/kg max: 0.1 mL

▼***ALS PERSONNEL***

10. Alternate doses/routes of administration of **EPINEPHRINE** for patients with severe respiratory distress or hypotension:

Alternate Epi

10.1 Adult patients: Administer **EPINEPHRINE 1:10,000** 0.01 mg/kg to a maximum of 0.5 mg IV over 5-10 minutes.

Epi by IV

10.1.1 If unable to establish an IV, administer **EPINEPHRINE 1:1000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube.

Epi by ETT

10.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:10,000** 0.005-0.020 mg/kg (to a maximum of 0.5 mg) IV over 5-10 minutes.

Epi by IV

10.2.1 If unable to establish an IV, administer **EPINEPHRINE 1:1000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE** by endotracheal tube.

Epi by ETT

11. As an alternative to **EPINEPHRINE,** administer **TERBUTALINE** (Brethine®, Bricanyl®) as indicated below:

Terbutaline

11.1 Adult patients: Administer **TERBUTALINE** (Brethine®, Bricanyl®) 0.25 mg SQ.

11.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **TERBUTALINE** (Brethine®, Bricanyl®) 0.01 mg/kg SQ, to a maximum of 0.25 mg/dose.

12. Administer **ALBUTEROL** (Proventil®, Ventolin®) as indicated below:

    12.1 All patients ≥ 6 months of age: Administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE)** by nebulizer over 5-15 minutes. May repeat x 2 en route.

Albuterol by nebulizer

    12.2 For pediatric patients <6 months: Administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE)** by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

Pedi <6 months Albuterol by nebulizer

13. Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), as indicated below:

    13.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) 100 mg IV.

    .

Hydrocortisone Sodium Succinate

Adult: 100 mg IV

    13.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

Pedi: 1-2 mg/kg IV

▼***ALS PERSONNEL***

14. Contact Medical Control.

    14.1 ***EMT-Ps only:*** With authorization from Medical Control, may administer **EPINEPHRINE** by IV infusion as indicated below:

        14.1.1 Infuse **EPINEPHRINE** 0.05-0.20 mcg/kg/min

Med Control

Epi drip

▼***ALL EMTS***

15. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

16. Document all incident information by completing the *RI EMS Ambulance Run Report*.

Transport Document

Burns

Quick Reference

Limit burns

Manage ABC

Remove burned clothing

?inhalation injury

High Conc O2, assist ventilations

No EOA

ET Intubation

TREATMENT

1. **Stop the burning process.** Remove smoldering, non-adherent clothing.

2. Assess the airway and follow the *Airway Management and Respiratory Support* protocol, if necessary. Check for breathing and pulse. If not present, start CPR.

3. Remove the patient's clothing and rings (but **do not** pull off skin or tissue).

4. Suspect an inhalation injury if any of the following is present on assessment:

   a. Closed space burn (facial burn; singed nasal hairs, beard or mustache)
   b. Sooty or bloody sputum
   c. Difficulty breathing or brassy cough

5. Assist ventilation with a bag-valve-mask device and high-flow **OXYGEN**, if necessary; or administer **OXYGEN** by highest-concentration device tolerated if respirations are normal.

   5.1 Do not use an esophageal obturator airway.

   5.2 ***EMT-Ps only***: Consider early intubation for patients with signs of inhalation injury or respiratory distress due to increased incidence of obstruction from airway edema.

5.3 For pediatric patients <5 feet tall (<35 kg/75 lbs) who demonstrate respiratory distress from suspected upper airway swelling, administer **EPINEPHRINE** 1:1000 as indicated below. BLS personnel must contact Medical Control for authorization.

5.3.1 Administer **EPINEPHRINE** 5 mL of 1:1000 solution by nebulizer over 5-15 minutes. May repeat once if necessary.

Pediatric upper airway swelling: Epi

6. Assess for any trauma that may not have been suspected initially.

7. Wash chemical burns with copious amounts of clean water, **NORMAL SALINE** or other appropriate solutions/decontaminants.

   7.1 For exposure to hydrofluoric acid (HF), apply **CALCIUM GLUCONATE** 2.5% topical gel, if available, directly to the exposed area.

8. In burns of <10% of body surface area, apply moist saline dressings to comfort the patient. (Third degree burns are not usually painful).

   8.1 Use aseptic technique as much as possible.

Evaluate for other injuries

Flush

?Calcium Gluconate

Moist dressings

8.2 Cover burned areas >10% of body surface area with sterile dressings or sheets.

9. Do not allow the patient to consume any food or liquids.

NPO

▼***ALS PERSONNEL***

10. For any patient with a serious burn (2nd and/or 3rd degree >20% of the body surface area), start a large bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution, as indicated below.

IV: NS or LR

10.1 Adult patients: Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at 300mL/hour; or "wide open" if there is evidence of shock.

10.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution, 20 mL/kg/hr; or as 20 mL/kg boluses by rapid IV push if there is evidence of shock.

10.3 If unable to establish an IV in ≤ 2 attempts (5 minutes), transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

11. Contact Medical Control. For patients exhibiting moderate to severe pain, Medical Control may authorize ALS personnel to administer **MORPHINE SULFATE,** following the *Pain Management and Sedation protocol.*

Med Control Pain Relief

▼***ALL EMTS***

12. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.* Under certain circumstances, transport by air ambulance may be indicated. Refer to *Air Ambulance* protocol.

Transport

13. For any serious burn of the body and for all inhalation injuries, contact Medical Control en route. Refer to *Burn Injury Chart.*

Med Control

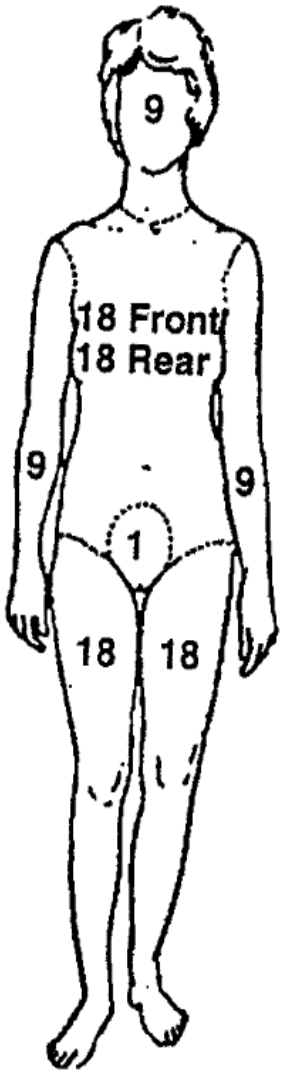
14. Re-evaluate and monitor for airway distress .

Re-eval airway

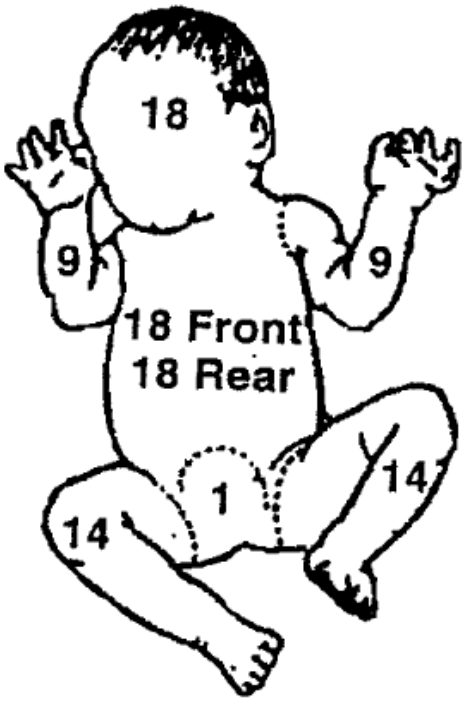
15. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Document

Burn Injury Chart



Children ≥ 8 Years & Adults



Infants & Children < 8 Years

Numbers represent percentage of body surface area (BSA).

The area of the patient's palm (hand without fingers) = 1% of the body surface area.

Shock

RECOGNITION

Shock is a state of decreased tissue perfusion that can result from a large variety of causes. Consider the diagnosis of shock for any patient with:

1. Altered mental status
2. Impaired consciousness; restlessness; coma
3. Pale, cool, clammy (diaphoretic) skin
4. Abnormal vital signs, as shown in the table below:

ABNORMAL VITAL SIGNS

Age	Respiratory Rate		Heart Rate		Systolic BP	
	Too Slow	*Too Fast*	*Too Slow*	*Too Fast*	*Too Low*	NOTE:
Newborn (birth-1month)	<30	>80	<100	>200	<40	Absent
Infant (1 month – 1 year)	<20	>70	<80	>180	<60	Radial Pulse
Pre-School (1-6 years)	<16	>40	<70	>160	<75	suggests
School Age (6-12 years)	<12	>30	<60	>140	<85	Hypotension
Adolescent (12-16 years)	<10	>24	<60	>120	<90	
Adult (≥ 16 years)	<10	>24	<60	>120	<90	

5. Significant hypotension, as indicated for **adult** patients in the table below:

If unable to palpate pulse at:	*Systolic BP is probably:*
radial artery	<90 mm Hg
brachial artery	<80 mm Hg
femoral artery	<70 mm Hg
carotid artery	<60 mm Hg

TREATMENT

1. Perform initial assessment while protecting the airway with appropriate maneuver.
2. Control external bleeding by direct pressure or pressure points.
3. Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.
4. If respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.
5. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

Quick Reference

Initial survey

Control bleeding

High conc O_2

Physical exam & vital signs

6. Attempt to determine cause of shock:

   6.1 If shock is secondary to trauma: Transport as soon as possible; contact Medical Control; and follow the *Trauma* protocol. Elevate patient's legs, unless contraindicated. — *Trauma*

   6.2 If shock is secondary to anaphylaxis (eg: bee sting allergy), follow *Anaphylaxis* protocol, then continue as below. Elevate patient's legs, unless contraindicated. — *Anaphylaxis*

7. Consider use of pneumatic anti-shock garment following the *PASG* protocol. — *PASG*

∇ALS PERSONNEL

8. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*. — *Monitor ECG*

9. Start a large bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution: — *IV: NS orLR*

   9.1 For all forms of shock **except cardiogenic:**

      9.1.1 Adult patients: Administer IV "wide open" until there is an improvement in systolic BP to a value above 90 mm Hg; or until clinical signs of CHF develop.

         9.1.1.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

      9.1.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses as necessary to achieve systolic BP above age-related hypotensive value (refer to table).

         9.1.2.1 For pediatric patients with evident or suspected intra-abdominal injury, attempts to start IVs should be made above the diaphragm.

         9.1.2.2 If transport time will be longer than 15 minutes, start a second IV.

      9.1.3 If unable to establish an IV in ≤2 attempts, (<5 minutes) transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

∇ALS PERSONNEL

9.2 For **cardiogenic shock**:

9.2.1 Adult patients: Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (20-30 mL/hour).

9.2.1.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

9.2.2 Pediatric patients <5 feet tall(<35 kg/75 lbs.): Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (10-20 ml/ hour).

9.2.2.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

9.2.3 If unable to establish an IV in ≤ 2 attempts (<5 minutes), transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

9.2.4 Consider a fluid challenge of **NORMAL SALINE** or **LACTATED RINGER'S** solution IV:

NS or LR: fluid challenge

9.2.4.1 Adult patients: Administer 500mL "wide open" until there is an improvement in systolic BP to a value above 90 mm Hg; or until clinical signs of CHF develop.

9.2.4.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses as necessary to achieve systolic BP above age-related hypotensive value (refer to table).

9.3 ***EMT-Ps only:*** May administer **DOPAMINE HCL** by IV infusion as indicated below. EMT-Cs may administer **DOPAMINE HCL** by IV infusion with authorization from Medical Control, as indicated below.

Dopamine

9.3.1 Adult patients: Administer **DOPAMINE HCL** (400 mg in 250 mL NS) and titrate the rate to achieve a systolic blood pressure >90 mm Hg.

9.3.2 Pediatric patients <5 feet tall (<35kg/75lbs): Administer **DOPAMINE HCL** as indicated on Broselow® Tape, at 5-20 mcg/kg/min IV, and titrate the rate to achieve a systolic blood pressure above age-related hypotensive value (refer to table).

(Dopamine per Broselow® Tape)

10. If patient is wearing a Medic Alert or equivalent identification stating "adrenal insufficiency", administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) as indicated below:

Check Medic Alert

10.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) 100mg IV.

Solu-Cortef®

Adult 100mg

10.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

Pedi: 1-2 mg/kg

∇ ALL EMTS

11. Contact Medical Control

Medical Control

12. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

Transport

13. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Document

Trauma

DEFINITIONS

Level I Trauma Center: A hospital emergency facility verified by the American College of Surgeons as a Level I Trauma Center for adult and/ or pediatric patients. For a list of ACS-verified Level I Centers in or near Rhode Island, see Appendix (pp. 39-8).

PRINCIPLES

1. Rapid initial assessment is essential. Access to the patient for the initial assessment and initial treatment should take precedence over complete extrication.

2. Transport should always occur as soon as possible after immobilization (ideally, in less than 10 minutes at the scene). Further treatment should be given en route.

TREATMENT

1. Stabilize the patient's neck and spine and immobilize with cervical collar and spineboard as soon as possible.

2. Follow the *Airway Management and Respiratory Support* protocol to manage the airway and to ensure oxygenation and ventilation.

   2.1 Use the chin lift or jaw-thrust without head-tilt, taking care to avoid movement of the cervical spine.

   2.2 Clear upper airway manually or by suction, as necessary.

   2.3 Administer **OXYGEN** with the highest-concentration device tolerated.

   2.4 If respirations are absent or ineffective, ventilate or assist, as needed.

   2.5 Control bleeding by direct pressure. Do not remove penetrating objects unless authorized by Medical Control.

3. If the patient is unconscious and pulseless, determine if the *Biological Death or Comfort One* protocol applies. If criteria for *Biological Death* or *Comfort One* are <u>not</u> met, start basic life support and follow *Cardiac Arrest* protocol.

4. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

5. Determine the patient's initial trauma score. Refer to *Revised Trauma Score (Adult) and Trauma Score (Pediatric)* tables.

   5.1 Transport without delay and <u>contact Medical Control</u> as soon as possible.

Quick Reference

Immobilize ASAP

Manage A-B-C

Modified jaw thrust

Suction

High conc O_2

Ventilate

Pressure to stop bleeding

R/O biological death and/or Comfort One

Physical Exam & Vital Signs

Trauma score

Transport early; Med Control

5.2 Adult patients: If the trauma score <11, or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are within 30 minutes ground transport time to an Adult Level I Trauma Center, transport to that Trauma Center's emergency department, unless an airway emergency exists. If an airway emergency exists, follow the *Airway Management and Respiratory Support* protocol.

Adult RTS <11 or trauma factors, ground transport time ≤30 minutes: Transport to Adult Level I Trauma Center.

Consider air ambulance to an adult trauma center.

5.2.1 If the scene time and/or ground transport time will be more than 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to an Adult Level I Trauma Center. Follow the *Air Ambulance* protocol.

5.2.2 If you are beyond 30 minutes ground transport time to an Adult Level I Trauma Center, transport to the nearest ***HOSPITAL EMERGENCY FACILITY.***

Ground transport time>30 minutes: Nearest ED

5.3 If a pediatric patient's trauma score ≤ 10, transport without delay; contact Medical Control as soon as possible.

Pedi TS ≤10: Med Control

5.4 Pediatric patients <5 feet tall (<35 kg/75 lbs): If the pediatric trauma score is <9 or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are within 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to that Trauma Center's emergency department, unless an airway emergency exists. If an airway emergency exists, follow the *Airway Management and Respiratory Support* protocol.

Pedi TS <9 or trauma factors, ground transport time ≤ 30 minutes to Pedi Level I Trauma Center

Consider air ambulance to pediatric trauma center

5.4.1 If the scene time and/or ground transport time will be more than 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to a Pediatric Level I Trauma Center. Follow the *Air Ambulance* protocol.

5.4.2 If you are beyond 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to the nearest ***HOSPITAL EMERGENCY FACILITY***.

Ground transport time > 30 minutes; nearest ED

6. Transport the patient without delay to an appropriate ***HOSPITAL EMERGENCY FACILITY*** and contact Medical Control en route.

Transport

7. If the patient is pregnant and no contraindications exist, elevate the patient's right side (or tilt spineboard to the left) during transport.

? Pregnant pt: Tilt board to left

8. If signs of shock are present, priority should be given to early contact with Medical Control and to rapid transport to the appropriate facility. Follow the *Shock* protocol en route.

? Shock: Treat en route

8.1 Apply and inflate the Pneumatic Anti-Shock Garment, following the *PASG* protocol.

PASG

∇ALS PERSONNEL

8.2 Start at least one large-bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

IV: NS or LR

8.2.1 Adult patients: Administer IV "wide open" until there is an improvement in systolic BP to a value >90 mm Hg or until clinical signs of CHF develop.

Wide open

8.2.1.1 If transport time will be will be longer than 15 minutes, start a second IV at a different site.

Additional IV

8.2.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses, as necessary, to achieve systolic BP above age-related hypotensive value (refer to table).

20 mL/kg/dose

8.2.2.1 For pediatric patients with evident or suspected intra-abdominal injury, attempts to start IVs should be made above the diaphragm.

IV sites above diaphragm

8.2.2.2 If transport time will be longer than 15 minutes, start a second IV at a different site.

Additional IVs

9. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

Monitor ECG

∇ALL EMTS

10. Continue further therapy as indicated for specific injuries.

11. Document all incident information by completing the *RI EMS Ambulance Run Report*.

Document

Further Treatment of Chest Trauma

1. Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.

   High conc O_2 (ventilate)

2. Flail chest (paradoxical movement of a portion of the chest wall).

   Flail segment

   2.1 Position patient with injured side down, unless contraindicated.

   Injured side down

   2.2 Provide manual stabilization of flail segment or splint, as needed.

   Stabilize flail chest

3. Open pneumothorax (sucking chest wound)

   ? Open pneumo

   3.1 Close on three sides by any appropriate means available (eg: gauze pad with Vaseline®; plastic wrap; defibrillator pad; etc.)

   Occlusive dressing

   3.2 Monitor the patient closely for evidence of developing tension pneumothorax.

   Monitor for tension pneumo

4. Tension pneumothorax (increasing ventilatory impairment; distended neck veins; absent breath sounds with hyper-resonance on one side of the chest; tracheal deviation away from the side without breath sounds)

   ? Tension pneumothorax

   4.1 If present, after closure of a sucking chest wound, remove the dressing to convert it to a simple open pneumothorax again.

   Lift occlusive dressing

   4.2 ***EMT-Ps only*** may attempt pleural decompression.

   Pleural decomp

Further Treatment of Abdominal Trauma

1. Closed (blunt)

   Closed

   1.1 Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated.

   Flex hips and knees

2. Open (penetrating)

   Open

   2.1 Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated

   Flex hips and knees

   2.2 Cover wound with sterile dressing and stabilize any impaled object.

   Dry sterile dressing

   2.2.1 If evisceration is present, moisten sterile dressing with sterile saline.

   Moisten with sterile saline if evisc.

Further Treatment of Head/Spinal Injuries

1. Establish airway, and maintain with appropriate maneuver following the *Airway Management and Respiratory Support* protocol.

Airway

2. Stabilize neck and spine with cervical collar and spineboard as soon as possible.

Stabilize C-spine

3. Control scalp bleeding by direct pressure unless obvious fracture of skull is present.

Control bleeding

4. Assess the patient's neurologic status using the **AVPU** method or **Glasgow Coma Scale,** and repeat en route.

Neuro exam

5. For an unconscious patient, hyperventilate with high-concentration **OXYGEN** following the *Airway Management and Respiratory Support* protocol.

Hyperventilate

∇ALS PERSONNEL

6. Maintain IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below:

Head injury without shock: Reduce IV fluids to KVO

6.1 Adult patients: In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** IV to KVO rate (20-30mL/hour). If there is evidence of shock, administer IV fluid "wide open."

6.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20 ml/kg/dose by rapid IV push.

Further Treatment of Extremity Trauma (amputation, fracture)

1. Document any unusual circumstance involving the injury (eg: Gross contamination; movement from the original position prior to your arrival) by completing the *RI EMS Ambulance Run Report.*

Document unusual circumstances

2. Cover open (compound) fractures or amputation stumps with sterile dressings, then immobilize the limb. Elevation of an immobilized extremity is often helpful in controlling bleeding.

Apply sterile dressings to open wounds

3. Immobilize an apparent fracture, dislocation, or amputation in the position found with appropriate splinting devices, unless:

   3.1 There are no pulses distal to injury site. Contact Medical Control if distal pulses are absent. Medical Control may authorize movement of the extremity.

   3.2 The extremity is angulated and interferes with safe transport.

   3.3 There is an apparent fracture of the shaft of the femur.

      3.3.1 Adult patients: Apply a traction splint.

      3.3.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Apply a pediatric traction splint, if available.

Immobilize in position found unless:

No distal pulse

Angulated

Shaft of femur

4. Place amputated parts in a sterile dressing moistened with **STERILE SALINE**. Place the dressing that contains the amputated part(s) in a towel or a plastic bag, then on an ice pack, if available. Do not place the amputated parts directly on ice or in any liquids.

Preserve amputated parts

∇ALS PERSONNEL

5. Maintain IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below:

   5.1 Start IV(s) in uninvolved extremities or proximal to fracture sites (in cases of multiple fractures).

      5.1.1 Adult patients: In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (20-30 ml/hour) If there is evidence of shock, administer IV fluid "wide open."

      5.1.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20mL/kg/dose by rapid IV push.

Long bone fx: IV therapy

Further Treatment of Eye Trauma

1. Check for pain, loss of vision, and eye muscle function (side-to-side and up-and-down motions of the eyes).

Examine eye and vision

2. Manage eye trauma by:

Eye care

2.1 Irrigation of chemical or small foreign body injuries for at least 15 minutes, using at least 500 mL of **LACTATED RINGER'S** or **NORMAL SALINE.**

Irrigation

2.1.1 **EMT-Ps only**: <u>For chemical or small foreign body injuries only,</u> may instill **TETRACAINE HCL** 0.5% solution, 1-2 gtt into affected eye. May repeat every 5-10 minutes to a maximum of 3 doses.

Tetracaine

2.2 Only in cases where irrigation of liquid injuries (chemical or hot liquids) is required, trained personnel may use a soft contact lens-type irrigation system (Morgan Lens® or equivalent) using at least 500ml of **LACTATED RINGER'S** or **NORMAL SALINE** solution.

Morgan Lens

2.3 Protecting traumatized eye by applying an appropriate dressing and protective eye shield. <u>Do not apply pressure or dressings directly to the eyeball (globe).</u>

Dressing and Shield

2.4 Covering both eyes to limit sympathetic movement of the injured eye.

Cover both eyes

3. Document the type of injury (eg: Contusion, laceration, chemical, foreign body) by completing the *RI EMS Ambulance Run Report*.

Document

APPENDIX
Level I Trauma Centers
Rhode Island and Contiguous
Massachusetts and Connecticut

Providence, RI

Rhode Island Hospital	Adult & Pediatric

Boston, MA

Beth Israel Deaconess Medical Center	Adult
Boston Medical Center	Adult
Brigham & Women's Hospital	Adult
Children's Hospital of Boston	Pediatric
Massachusetts General Hospital	Adult
Massachusetts General Hospital for Children	Pediatric
The Floating Hospital for Children	Pediatric

New Haven, CT

Yale New Haven Medical Center	Adult and Pediatric

Hartford, CT

Hartford Hospital	Adult

Medications
(Listed by Generic Names)

Including Optional Medications

Generic Name (Familiar Chemical Name)		Common Trade Names
A	Acetaminophen (APAP)	Tylenol®
	Activated charcoal	Actidose®, Charcodote®
	Adenosine	Adenocard®
	Albuterol	Ventolin®, Proventil®
	Antacid	Mylanta®
	Aspirin (ASA)	(aspirin)
	Atropine (atropine sulfate)	(atropine)
B	Bretylium (bretylium tosylate)	Bret-ylol®
C	Calcium chloride	Calcium Chloride®
	Calcium Gluconate	Calcium Gluconate
D	Dextrose 25% (D25W, D25)	(25% dextrose)
	Dextrose 50% (D50W, D50)	(50% dextrose)
	Diazepam rectal gel preparation	Diastat®
	Diazepam	Valium®
	Diltiazem	Cardizem®
	Diphenhydramine (Diphenhydramine HCL) *[injectable]*	Benadryl®
	Diphenhydramine (Diphenhydramine HCL) *[oral]*	Benadryl®
	Dopamine (dopamine HCL)	Intropin®
E	Epinephrine 1:10,000 (epinephrine HCL)	Adrenalin® 1:10,000
	Epinephrine 1 :1000 (epinephrine HCL)	Adrenalin® 1:1000
F	Furosemide	Lasix®
G	Glucagon	(glucagon)
	Glucose, oral	Glucola®, Glutose®, InstaGlucose®
H	Hydrocortisone Sodium Succinate	Solu -Cortef®
I	Ipecac (syrup of ipecac)	(syrup of ipecac)
L	Lidocaine (lidocaine HCL)	Xylocaine®
M	Midazolam	Versed®
	Morphine (morphine sulfate, MSO4)	(morphine)
N	Naloxone (naloxone, HCL)	Narcan®
	Nitroglycerine	Nitrobid®
	Nitrospray	Nitrobid®
O	Oxygen (02)	(oxygen)
P	Phenobarbital (Phenobarbital sodium)	(phenobarbital)
S	Sodium bicarbonate (NaHC03)	(sodium bicarbonate)
T	Terbutaline (terbutaline sulfate)	Brethine®, Bricanyl®
	Tetracaine HCL	Pontocaine®
	Thiamine (thiamine HCL)	(thiamine)
V	Verapamil (verapamil HCL)	Calan®, Isoptin®

Pediatric Drug Reference

	Generic Name	Protocol	Initial Dose Pediatric		5 kg	10 kg	15 kg	20 kg	25 kg	30 kg	35 kg
					~3 mos	~1 year	2-3 yrs	4-6yrs	7-9 yrs	10-11 yrs	12-14 yrs
A	Acetaminophen	Seizures (Pedi)	15 mg/kg by suppository	**#mg=**	75	150	225	300	375	450	525
	Activated charcoal	Poisoning and OD	1 gm/kg PO	**#grams=**	5	10	15	20	25	30	35
	Adenosine	SVT (Pedi) VT	0.1 mg/kg IV rapid push	**#mg=**	0.5	1	1.5	2	2.5	3	3.5
	Albuterol	Asthma, CHF	1.25-2.5 mg by nebulizer	**#mg=**	1.25	2.5	2.5	2.5	2.5	2.5	2.5
	Antacid (Mylanta®)	Chest Pain in a Susp Cardiac Pt.	30ml PO	**#ml=**					30	30	30
	Atropine	Asystole, PEA	0.02 mg/kg IV push	**#mg=**	0.1	0.2	0.3	0.4	0.5	0.6	0.7
	Atropine	Bradycardia (pedi)	0.02 mg/kg IV push	**#mg=**	0.1	0.2	0.3	0.4	0.5	0.6	0.7
B	Bretylium	VF/*VT*, VT stable/unstable	5 mg/kg IV push	**#mg=**	25	50	75	100	125	150	175
D	Dextrose 25% (D25W)	Imp Consciousness, SZ (pedi)	2 ml/kg (0.5gm/kg)IV	**#ml=**	10	20	30	40	50	60	70
	Diazepam	Seizures (pedi)	0.1-0.3 mg/kg IV	**#mg=**	0.5-1.5	1.0-3.0	1.5-4.5	2.0-6.0	2.5-7.5	3.0-9.0	3.5-10.5
	Diazepam	Pain Management and Sedation	0.05-0.2 mg/kg IV	**#mg=**	0.25-1.0	0.5-2.0	0.75-3.0	1.0-4.0	1.25-5.0	1.50-6.0	1.75-7.0
	Diastat	Seizures (Pedi)	0.5 mg/kg PR (round down)	**#mg=**	2.5	5	7.5	10	12.5	15	17.5
	Diphenhydramine	Anaphylaxis	1 mg/kg IV or IM or PO	**#mg=**	5	10	15	20	25	30	35
	Dopamine	Anaphylaxis, Shock	5-20 mcg/kg/min	**mcg/min**	25-100	50-200	75-300	100-400	125-500	150-600	175-700
E	Epinephrine 1:10,000	Asystole, PEA, VF/VT, Brady (pedi)	0.1 ml/kg IV push	**#ml=**	0.5	1	1.5	2	2.5	3	3.5
	Epinephrine 1:10,000	Anaphylaxis, Asthma	0.005-.020 ml/kg IV	**#ml=**	.03-.1	.05-.2	.08-.3	.1-.4	.13-.5	.15-.5	.18-.5
	Epinephrine 1:1,000	Anaphylaxis, Asthma	0.01 ml/kg SQ, max=0.3 ml	**#ml**	0.05	0.1	0.15	0.2	0.25	0.3	0.3
	Epinephrine 1:1,000	Airway Mgmt., Burns, Dyspnea	5.0 mg nebulized	**#ml=**	5	5	5	5	5	5	5
F	Furosemide	Congestive Heart Failure	1 mg/kg IV	**#mg=**	5	10	15	20	20	20	20
G	Glucagon	Imp Consciousness, Sz (pedi)	0.1 mg/kg IM, SQ, max=1 mg	**#mg=**	0.5	1	1	1	1	1	1
	Glucose (oral)	Sz (pedi)	<1 yr. dose by Med Control	**#gm=**			15	15	15	15	15
H	Hydrocortisone SS	Anaphylaxis, Asthma, Shock	1-2 mg/kg	**#mg**	5-10	10-20	15-30	20-40	25-50	30-60	35-70
I	Ipecac (syrup)	Poisoning and Overdose	15 or 30 ml PO	**#ml=**	15	15	15	15	30	30	30
L	Lidocaine	Chest Pain in a Susp Cardiac Pt.	1-1.5 mg/kg IV push	**#mg=**	5-7.5	10-15	15-22.5	20-30	25-37.5	30-45	35-52.5
	Lidocaine	PVCs, VF/VT, VT Stable/Unstable	1-1.5 mg/kg IV push	**#mg=**	5-7.5	10-15	15-22.5	20-30	25-37.5	30-45	35-52.5
M	Midazolam	Pain Management and Sedation, SZ	0.05 - 0.1 mg/kg IV or IM	**#mg=**	0.25-0.50	0.50-1.0	0.75-1.5	1.0-2.0	1.25-2.5	1.5-3.0	1.75-3.5
	Morphine	Burns, Chest Pain, CHF, Pain	0.05 or 0.1 mg/kg IV	**#mg=**	0.25	1	1.5	2	2.5	3	3.5
N	Naloxone	Impaired Consciousness	0.1 mg/kg IV push, IM or SQ	**#mg=**	0.5	1	1.5	2	2.5	3.0	3.5
	Naloxone	Pain Management and Sedation	0.01 mg/kg IV push	**#mg=**	0.05	0.1	0.15	0.2	0.25	0.3	0.35
	Nitroglycerin	Chest Pain, CHF	*(Dose per Med Control)*	**#mg=**							
P	Phenobarbital	Seizures (pedi)	20 mg/kg IV	**#mg=**	100	200	300	400	500	600	700
S	Sodium bicarbonate	Asystole, PEA, VF/VT	1 mEq/kg IV push	**#mEq=**	5	10	15	20	25	30	35
T	Terbutaline	Asthma	0.01 mg/kg SQ, max= 0.25 mg	**#mg=**	0.05	0.1	0.15	0.2	0.25	0.25	0.25
	Tetracaine	Eye Trauma	1-2 gtt to affected area	**N/A**	1-2gtt	1-2gtt	1-2gtt	1-2gtt	1-2gtt	1-2gtt	1-2gtt

Air Ambulance (Helicopter)

1. An air ambulance may be called to the scene in severe trauma cases if scene time and transport time will be prolonged and if a landing site is available. The air crew will determine which trauma center is appropriate to receive the patient.

2. An air ambulance may be called with authorization from Medical Control in cases of critical illness or injury. The air crew will determine which specialized care center is appropriate to receive the patient.

3. Listed below are the air ambulance services that are available for scene response. Their aircraft bases are noted to provide geographic reference, but estimated time of arrival to a request should be obtained by calling the individual service.

Air Ambulance Service	**Telephone**
Life Flight UMASS-Memorial (Worcester, Massachusetts)	1-800-343-4354
Life Star (Hartford and Norwich, Connecticut)	1-800-221-2569
Med Flight (Bedford and Plymouth, Massachusetts)	1-800-233-8998

PROCEDURE

1. Contact air ambulance service. **Note:** If transport by air ambulance is to be undertaken, early contact with an air ambulance service is essential. Care of the patient should not be interrupted.

2. Select, prepare, and approach the landing site only as directed by the air ambulance service.

3. Identify a landing area with a minimum open space of 60 feet by 60 feet (100 feet by 100 feet for night landings).

4. Inform the air ambulance service of any obstacles at the landing site (trees, telephone lines, antennas, etc.).

5. Secure the landing area to prevent unauthorized persons from approaching the air ambulance.

6. Keep the landing zone clear of loose articles and hazardous debris, and protect the patient from rotor wash.

7. Keep well clear of the landing area when the air ambulance is approaching or taking off.

8. Do not approach the air ambulance unless requested by the flight crew.

9. If requested, approach within the pilot's field of vision.

10. Carry equipment horizontally, below your waist level; **never upright or over your shoulder.**

11. Follow the suggestions of the flight crew when assisting near the air ambulance.

12. **No smoking** in or within 50 feet of the air ambulance.

Interfacility Transfer

Purpose

To clarify the staffing patterns, vehicle selection, and scope of authority of individuals attending patients during interfacility transfers.

Definitions

Infusion device:
A commercial, electronically powered intravenous infusion pump/controller (eg: I-Med®, I-Vac®, Flo-Guard®, LifeCare®, Sigma®).

Interfacility transfer:
A patient transfer between licensed health care facilities.

EMT-B, EMT-I, EMT-C, EMT-P:

As defined in the *Rules and Regulations Relating to Emergency Medical Services (R23-4.1 –EMS), Rhode Island Department of Health.*

RN: A Rhode Island licensed Registered Nurse meeting the appropriate standards of care pertinent to the patient's condition, as determined by the referring physician.

PA: A Rhode Island licensed Physician's Assistant meeting the appropriate standards of care pertinent to the patient's condition, as determined by the referring physician.

Physician: A Rhode Island licensed physician.

Referring Physician:
The physician at the point of origin of the transfer directly responsible for the patient's care.

Classification Protocol

The patient classification shall be determined by the referring physician. The following system shall be used to define classes of patients with their respective minimum vehicle and personnel requirements.

Class A: Clearly and completely stable patients with minimal potential to decompensate en route. Example: Patient with no running IV line, going for routine test. **Staffing: EMT-B/I. Vehicle: BLS; Class: A-1, A-1A, A-2, B .**

Class B: Stable as above with IV running, no medications in the fluids. Example: Cancer patient with maintenance fluids running. **Staffing: EMT-B/I + EMT-C or EMT-P. Vehicle: ALS; Class: A-1, A-1A.**

Class C: Has been stabilized as much as possible, but may deteriorate en route. Has no medications being administered or infusion devices in use, which are beyond the scope of the assigned EMTs. Approved medications are listed in the *RI EMS Prehospital Care Protocols and Standing Orders.* Rate control devices within the scope of EMT practice include Dial-a-flow®. EMT-Cs and EMT-Ps who have successfully completed Department-approved IV infusion pump training may transport patients within this protocol. Example: Cardiac patient on **LIDOCAINE** drip who can be given sublingual **NITROGLYCERIN** for chest pain. **Staffing: EMT–B/I + EMT-C or EMT-P, depending on medications. Vehicle: ALS; Class: A-1, A-1A.**

Class D: Patient with acute medical problem who may become unstable en route. Requires administration of drugs not in the approved *RI EMS Prehospital Care Protocols and Standing Orders.* In addition, the patient may develop complications where treatment is beyond the capabilities of the assigned EMTs. Example: ICU transfer with IV **NITROGLYCERIN** drip and receiving thrombolytic drug infusion en route. **Staffing: EMT-B/I + EMT-C /EMT-P + RN/ PA / Physician Vehicle: ALS; Class: A-1, A-1A.**

EMT-Ps who have successfully completed Department-approved training in IV **NITROGLYCERIN** and IV anticoagulants may transport patients within this protocol. EMT-Cs and EMT-Ps who have successfully completed Department-approved IV infusion pump training may transport patients within this protocol.

In cases where an ALS unit is required and the hospital makes a reasonable effort to utilize an ALS unit and is unable to access one due to time constraints or patient condition, a BLS unit may be utilized, providing that appropriate supplies, equipment (refer to Addendum A), qualified staff and written/verbal orders have been provided.

Scope of Authority

Class A, B, or C transfers:

The EMT with the highest level of training will assume ultimate authority for patient treatment within the scope of the appropriate *RI EMS Prehospital Care Protocols and Standing Orders.* Medical Control shall assume such responsibility when called for by the respective protocol.

Class D:

The ultimate authority rests with the referring physician, as defined above. If no physician is present during transport, the RN or PA shall assume ultimate authority for the case.

Notwithstanding the requirements of the regulations and the protocols, hospitals may elect to transport a patient with hospital staff. In such cases, the hospital has ultimate authority for patient management, providing written/verbal orders accompany the patient. In the absence of hospital staff, the EMT with the highest level of training will assume ultimate authority for patient treatment within the scope of the appropriate protocols. Medical Control shall assume such responsibility when called for by the respective protocol.

Addendum A

1. Manual defibrillator unit with integral oscilloscope, strip chart recorder and synchronized cardioversion capability.

2. Sterile intravenous solutions of **NORMAL SALINE** and **LACTATED RINGER'S**, preferably in 500 mL plastic bags with administration kits (at least 2 of each).

3. IV catheters (3 each of 14,16,18,20 gauge).

4. Supply of current ALS medications authorized by the RI Department of Health, as listed below:

Adenosine	Diphenhydramine HCL(oral)	Glucagon	Nitro spray/nitroglycerin
Atropine Sulfate	Diphenhydramine HCL(injectable)	Hydrocortisne SS	Phenobarbital Sodium
Bretylium tosylate*	Dopamine HCL	Lidocaine HCL	Phenytoin Sodium (Dilantin)**
Calcium Chloride	Epinephrine 1:1000	Midazolam	Sodium Bicarbonate
Dextrose 25%($D_{25}W$)	Epinephrine 1:10000	Morphine Sulfate	Thiamine Sulfate
Dextrose 50%($D_{50}W$)	Furosemide	Naloxone	Verapamil HCL
Diltiazem			

* Bretylium tosylate, if available
**Phenytoin Sodium (Dilantin) for EMT-P interfacility maintenance only.

5. Biohazardous waste: Disposable sharps (hypodermic needles, etc.) should be placed in a container designed for such purpose.

Telephone Reference

AIR AMBULANCE (Helicopter)

Air Ambulance Service	**Telephone**
Life Flight UMASS-Memorial (Worcester, Massachusetts)	1-800-343-4354
Life Star (Hartford and Norwich, Connecticut)	1-800-221-2569
Med Flight (Bedford and Plymouth, Massachusetts)	1-800-233-8998

HOSPITAL EMERGENCY DEPARTMENTS

HOSPITAL	***NOTIFICATION***	***MEDICAL CONTROL***
Butler Hospital	401-455-6215	-N/A-
Hasbro Children's Hospital	401-444-6874	401-444-6874
Kent County Memorial Hospital	401-736-4288	401-737-3320
Landmark Medical Center - Woonsocket	401-769-1125	401-769-1125
Memorial Hospital	401-729-2191	401-729-2191
Miriam Hospital	401-793-3333	401-274-3333
Newport Hospital	401-845-1120	401-845-1211
Rhode Island Hospital	401-444-4220	401-444-5731
Roger Williams Medical Center	401-456-2132	401-456-2132
St. Joseph Hospital – Fatima Unit	401-456-3418	401-456-3402
South County Hospital	401-782-8010	401-782-8010
Veteran's Administration Hospital	401-457-3050	401-457-3050
Westerly Hospital	401-348-3325	401-348-3325
Women & Infants Hospital	401-453-7605	401-453-7605

OTHER AGENCIES

Diver's Alert Network (D·A·N)	919-684-8111
Emergency Number	919-684-2948
Regional Center for Poison Control & Prevention (Boston)	800-222-1222
Rape Crisis Center	401-421-4100 (24 hours)
Rhode Island Critical Incident Stress Management Team	401-763-2778 (pager)
Rhode Island Department of Health	401-222-2231
Division of Emergency Medical Services	401-222-2401
After hours, weekends, and holidays	401-272-5952
Rhode Island Emergency Management Agency	401-946-9996 (24 hours)
Rhode Island Medical Examiner's Office	401-222-5500 (8:30 – 4:30)
After hours, weekends, and holidays	401-222-2948
Rhode Island State Police	401-444-1111 (24 hours)
US Naval Ambulatory Care Center – Newport	401-841-3771
US Coast Guard-SAR (Castle Hill)	401-846-3675
SAR (Pt. Judith)	401-789-0444

Telephone Reference

RHODE ISLAND MUTUAL AID PLAN
REGIONAL CONTROL CENTERS
POC

NORTHERN CONTROL

Smithfield Fire Department
401-949-1233
Alt: N. Smithfield Fire Department
401-762-1414

SOUTHERN CONTROL

Exeter Emergency Dispatch
401-294-2233
Alt: Westerly Emergency Dispatch
401-539-2211

METRO CONTROL

Cranston Fire Department
401-461-5000
Alt: Providence Fire Department
401-274-3344
2nd Alt: Warwick Fire Department
401-468-4005

EAST BAY CONTROL

Portsmouth Fire Department
401-683-1155
Alt: Newport Fire Department
401- 846-2211